		55V	56V
		13 55.0 v	13 56.0 v
		57V	58V
		13 57.0 v	13 58.0 v
16	Charger source priority: To configure charger source priority	If this inverter/charger is working in Line, Standby or Fault mode, charger source can be programmed as below:	
		Solar first 16 CSO	Solar energy will charge battery as first priority. Utility will charge battery only when solar energy is not available.
		Solar and Utility (default) 16 SNU	Solar energy and utility will charge battery at the same time.
		Only Solar 16 OSO	Solar energy will be the only charger source no matter utility is available or not.
		If this inverter/charger is working in Battery mode or Power saving mode, only solar energy can charge battery. Solar energy will charge battery if it's available and sufficient.	
18	Alarm control	Alarm on (default) 18 bON	Alarm off 18 bOF
19	Auto return to default display screen	Return to default display screen (default) 19 ESP	If selected, no matter how users switch display screen, it will automatically return to default display screen (Input voltage /output voltage) after no button is pressed for 1 minute.
		Stay at latest screen 19 HEP	If selected, the display screen will stay at latest screen user finally switches.
20	Backlight control	Backlight on (default) 20 LON	Backlight off 20 LOF

22	Beeps while primary source is interrupted	Alarm on (default) 22 AON	Alarm off 22 AOF
23	Overload bypass: When enabled, the unit will transfer to line mode if overload occurs in battery mode.	Bypass disable (default) 23 bYd	Bypass enable 23 bYE
25	Record Fault code	Record enable (default) 25 FEN	Record disable 25 FdS

26	Bulk charging voltage (C.V voltage)	10.2KW default setting: 56.4V CV 26 56.4ᵥ
		If self-defined is selected in program 5, this program can be set up. Setting range is from 48.0V to 61.0V for 10.2KW model. Increment of each click is 0.1V.

27	Floating charging voltage	10.2KW default setting: 54.0V FLV 27 54.0ᵥ
		If self-defined is selected in program 5, this program can be set up. Setting range is from 48.0V to 61.0V for 10.2KW model. Increment of each click is 0.1V.

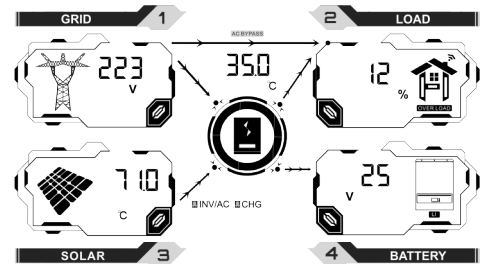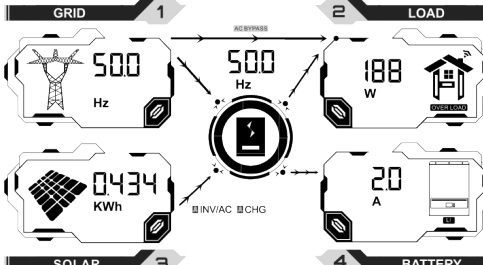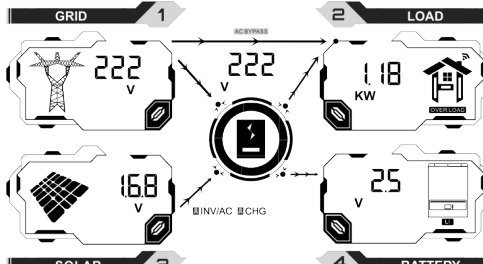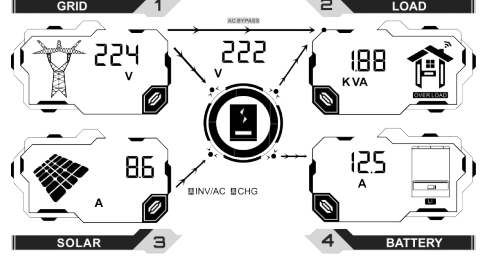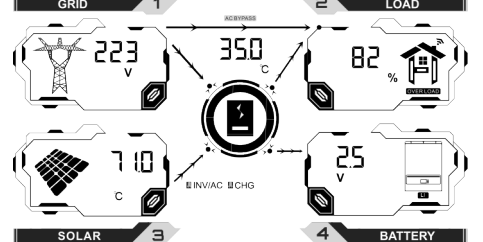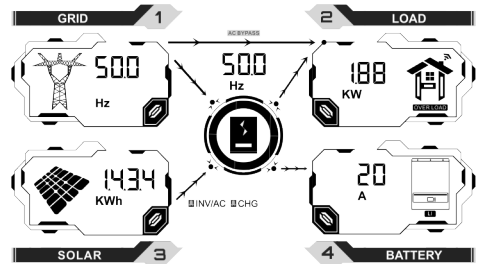| 29	Low DC cut-off voltage	10.2KW default setting: 40.0V COV 29 40.0ᵥ
		If self-defined is selected in program 5, this program can be set up. Setting range is from 40.0V to 48.0V for 10.2KW model. Increment of each click is 0.1V. Low DC cut-off voltage will be fixed to setting value no matter what percentage of load is connected.

30	Battery equalization	Battery equalization `30 EEn`	Battery equalization disable (default) `30 EdS`
		If "Flooded" or "User-Defined" is selected in program 05, this program can be set up.	
31	Battery equalization voltage	10.2KW default setting: 58.4V `Eu 31 58.4ᵥ BATT`	
		Setting range is from 48.0V to 61.0V for 10.2KW model. Increment of each click is 0.1V.	
33	Battery equalized time	60min (default) `33 60`	Setting range is from 5min to 900min. Increment of each click is 5min.
34	Battery equalized timeout	120min (default) `34 120`	Setting range is from 5min to 900 min. Increment of each click is 5 min.
35	Equalization interval	30days (default) `35 30d`	Setting range is from 0 to 90 days. Increment of each click is 1 day
36	Equalization activated immediately	Enable `36 AEn`	Disable (default) `36 AdS`
		If equalization function is enabled in program 30, this program can be set up. If "Enable" is selected in this program, it's to activate battery equalization immediately and LCD main page will shows "`E9`". If "Disable" is selected, it will cancel equalization function until next activated equalization time arrives based on program 35 setting. At this time, "`E9`" will not be shown in LCD main page.	
37	GRID-tie operation	Off grid (default) `37 OFF`	Inverter operates only in off-grid mode. Solar energy provides power to the loads as first priority and charging second
		Hybrid `37 HYd`	Inverter operates hybrid mode. Solar energy provides power to the loads as first priority and charging second Excess energy feed to grid.

38	GRID-tie current	10A **38 I0** A	Increment of each click is 2A.
39	Led pattern light	Led pattern off **39 LOF**	Led pattern on(default) **39 LON**
41	Dual output	disable (default) **41 L2F** ⊘	use **41 L2O** ⊘

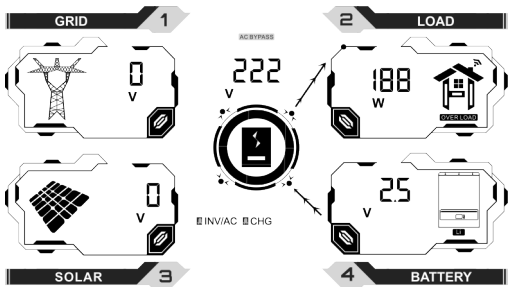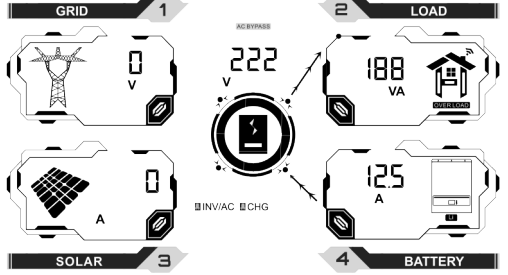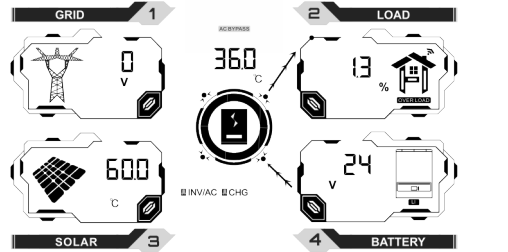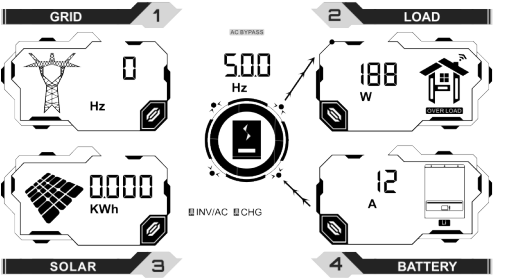| 42	Enter the dual output functional voltage point	10.2KW default setting: 44.0V **42 44.0** ⊘
		Setting range is from 40.0V to 52.0V for 48VDC model. Increment of each click is 0.1V.

5.5 Display Setting

The LCD display information will be switched in turns by pressing "UP" or "DOWN" key. The selectable information is switched as below order: input voltage, input frequency, PV voltage, charging current, charging power, battery voltage, output voltage, output frequency, load percentage, load in Watt, load in VA, load in Watt, DC discharging current, main CPU Version.

Selectable information	**LCD display**
Charged state, and the power is less than 1kw	
Input voltage=222V , PV voltage=168V, Battery voltage=25V, Output voltage=222V, Load in Watt=188W, Chg(Flashing), Inv/ac(bright)	
Input voltage=223V , PV current=2.3A, Battery current=20A, Output voltage=224V, Load in VA=188VA, Chg(Flashing), Inv/ac(bright)	

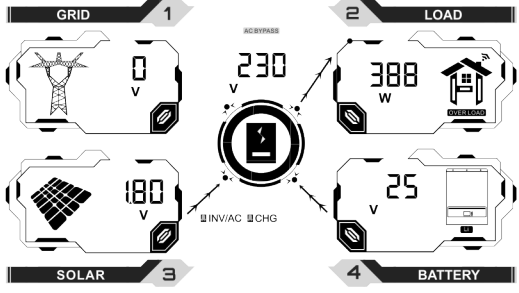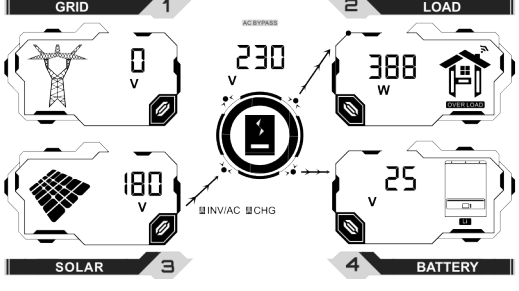|	
Input voltage=223V , Pv ntc temperture=71.0℃, Battery voltage=25V, Inv ntc temperture=35.0℃, Load percentage=12%, Chg(Flashing), Inv/ac(bright)	
Input frequency=50.0Hz , PV power=0.434KWh, Battery current=20A, Output frequency=50.0Hz, Load in watt=188W, Chg(Flashing), Inv/ac(bright)	
Charged state, and the power is greater than 1kw	
Input voltage=222V , PV voltage=168V, Battery voltage=25V, Output voltage=222V, Load in Watt=1.18KW, Chg(Flashing), Inv/ac(bright)	
Input voltage=224V , PV current=8.6A, Battery current=12.5A, Output voltage=222V, Load in VA=1.88KVA, Chg(Flashing), Inv/ac(bright)	
Input voltage=223V , Pv ntc temperture=71.0℃, Battery voltage=25V, Inv ntc temperture=35.0℃, Load percentage=82%, Chg(Flashing), Inv/ac(bright)	
Input frequency=50.0Hz , PV power=1.434KWh, Battery current=20A, Output frequency=50.0Hz, Load in watt=1.88KW, Chg(Flashing), Inv/ac(bright)	

Discharged state, and the power is less than 1kw	
Input voltage=0V , PV voltage=0V, Battery voltage=25V, Output voltage=222V, Load in Watt=188W, Chg(turn off), Inv/ac(Flashing)	GRID 1 / LOAD 2 AC BYPASS 0 V / 222 V / 188 W 0 V / 25 V INV/AC CHG SOLAR 3 / BATTERY 4
Input voltage=0V , PV current=0A, Battery current=12.5A, Output voltage=222V, Load in VA=188VA, Chg(turn off), Inv/ac(Flashing)	GRID 1 / LOAD 2 AC BYPASS 0 V / 222 V / 188 VA 0 A / 12.5 A INV/AC CHG SOLAR 3 / BATTERY 4
Input voltage=0V , Pv ntc temperture=60.0℃, Battery voltage=24V, Inv ntc temperture=36.0℃, Load percentage=13%, Chg(turn off), Inv/ac(Flashing)	GRID 1 / LOAD 2 AC BYPASS 0 V / 36.0 C / 13 % 600 C / 24 V INV/AC CHG SOLAR 3 / BATTERY 4
Input frequency=0Hz , PV power=0KWh, Battery current=12A, Output frequency=50.0Hz, Load in watt=188W, Chg(turn off), Inv/ac(Flashing)	GRID 1 / LOAD 2 AC BYPASS 0 Hz / 50.0 Hz / 188 W 0.000 KWh / 12 A INV/AC CHG SOLAR 3 / BATTERY 4

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Discharged state, and the power is greater than 1kw	
Input voltage=0V , PV voltage=0V, Battery voltage=25V, Output voltage=222V, Load in Watt=1.88KW, Chg(turn off), Inv/ac(Flashing)	
Input voltage=0V , PV current=0A, Battery current=111A, Output voltage=222V, Load in VA=1.88KVA, Chg(turn off), Inv/ac(Flashing)	
Input voltage=0V , Pv ntc temperture=68.0℃, Battery voltage= 24V, Inv ntc temperture=30.0℃, Load percentage=81%, Chg(turn off), Inv/ac(Flashing)	
Input frequency=0Hz , PV power=0KWh, Battery current=111A, Output frequency=50.0Hz, Load in watt=1.21KW, Chg(turn off), Inv/ac(Flashing)	
Main CPU version checking	Main CPU version 21 05

5.6 Operating Mode Description

Operation mode	Selectable information	LCD display
Stanby mode	Input voltage=222V , PV voltage=210V, Battery voltage=25V, Output voltage=0V, Load in Watt=0W, Chg(Flashing), Inv/ac(bright)	
	Input voltage=223V , PV voltage=0V, Battery voltage=25V, Output voltage=0V, Load in Watt=0W, Chg(Flashing), Inv/ac(bright)	
	Input voltage=0V , PV voltage=210V, Battery voltage=25V, Output voltage=0V, Load in Watt=0W, Chg(Flashing)	
Line mode	Input voltage=224V , PV current=8.6A, Battery current=12.5A, Output voltage=222V, Load in VA=1.88KVA, Chg(Flashing), Inv/ac(bright)	
	Input voltage=224V , PV voltage=0V, Battery voltage=25V, Output voltage=222V, Load in Watt=188W, Chg(Flashing), Inv/ac(bright)	
Grid-Tie Operation	Input voltage=224V , PV current=8.6A, Battery current=12.5A, Output voltage=222V, Load in VA=1.88KVA, Chg(Flashing), Inv/ac(bright)	
		When working in Grid-Tie mode,the will be flash 3S/times.

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Operation mode	Selectable information	LCD display
Battery mode	Input voltage=0V , PV voltage=180V, Battery voltage=25V, Output voltage=230V, Load in Watt=388W, Inv/ac(Flashing)	
	Input voltage=0V , PV voltage=180V, Battery voltage=25V, Output voltage=230V, Load in Watt=388W, Chg(Flashing), Inv/ac(Flashing)	

5.7 Battery Equalization Description

Equalization function is added into charge controller. It reverses the buildup of negative chemical effects like stratification, a condition where acid concentration is greater at the bottom of the battery than at the top. Equalization also helps to remove sulfate crystals that might have built up on the plates. If left unchecked, this condition, called sulfation, will reduce the overall capacity of the battery.   Therefore, it's recommended to equalize battery periodically.

⌘   **How to Apply Equalization Function**

You must enable battery equalization function in monitoring LCD setting program 30 first. Then, you may apply this function in device by either one of following methods:

1. Setting equalization interval in program 35.

2. Active equalization immediately in program 36.

⌘   **When to Equalize**

In float stage, when the setting equalization interval (battery equalization cycle) is arrived, or equalization is active immediately, the controller will start to enter Equalize stage.
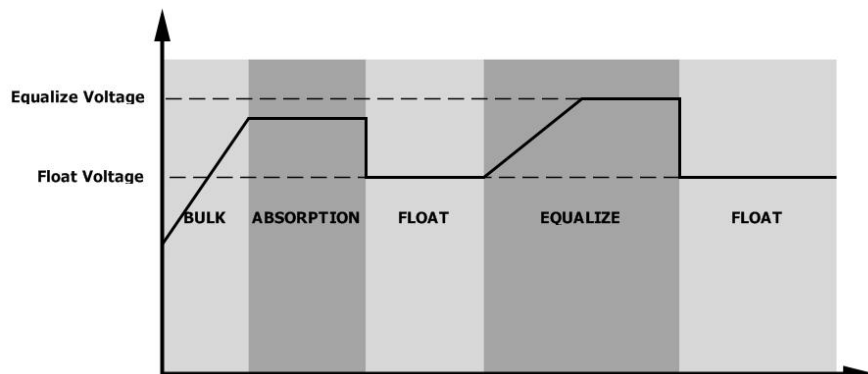
⌘ **Equalize charging time and timeout**

In Equalize stage, the controller will supply power to charge battery as much as possible until battery voltage raises to battery equalization voltage. Then, constant-voltage regulation is applied to maintain battery voltage at the battery equalization voltage. The battery will remain in the Equalize stage until setting battery equalized time is arrived.
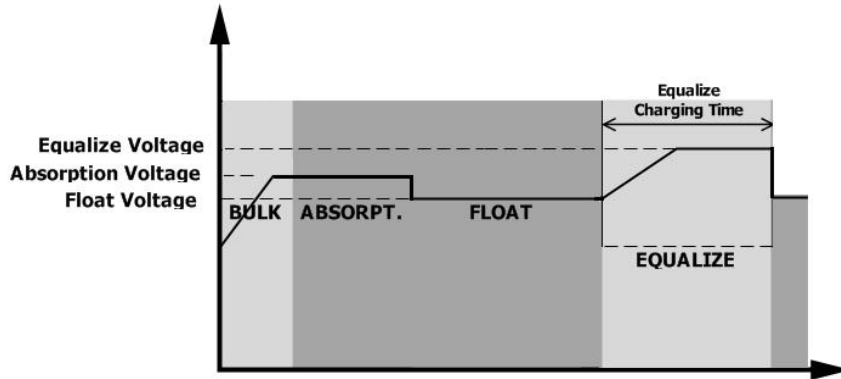
However, in Equalize stage, when battery equalized time is expired and battery voltage doesn't rise to battery equalization voltage point, the charge controller will extend the battery equalized time until battery voltage achieves battery equalization voltage. If battery voltage is still lower than battery equalization voltage when battery equalized timeout setting is over, the charge controller will stop equalization and return to float stage.
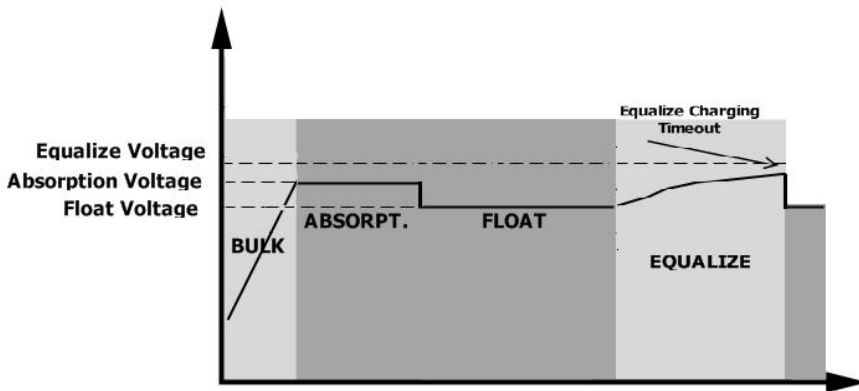
5.8 Fault Reference Code

Fault Code	Fault Event	Icon on
01	Fan is locked when inverter is off.	01 ERROR
02	Over temperature	02 ERROR
03	Battery voltage is too high	03 ERROR
04	Battery voltage is too low	04 ERROR
05	Output short circuited or over temperature is detected by internal converter components.	05 ERROR
06	Output voltage is too high.	06 ERROR
07	Overload time out	07 ERROR
08	Bus voltage is too high	08 ERROR
09	Bus soft start failed	09 ERROR
51	Over current or surge	51 ERROR

52	Bus voltage is too low	52 ERROR
53	Inverter soft start failed	53 ERROR
55	Over DC voltage in AC output	55 ERROR
57	Current sensor failed	57 ERROR
58	Output voltage is too low	58 ERROR
59	PV voltage is over limitation	59 ERROR

5.9 Warning Indicator

Warning Code	Warning Event	Audible Alarm	Icon flashing
01	Fan is locked when inverter is on.	Beep three times every second	01
03	Battery is over-charged	Beep once every second	03
04	Low battery	Beep once every second	04
07	Overload	Beep once every 0.5 second	07
10	Output power derating	Beep twice every 3 seconds	10
15	PV energy is low.	Beep twice every 3 seconds	15
E9	Battery equalization	None	E9
bP	Battery is not connected	None	bP

6 CLEARANCE AND MAINTENANCE FOR ANTI-DUST KIT

6.1 Overview

Every inverter is already installed with anti-dusk kit from factory. Inverter will automatically detect this kit and activate internal thermal sensor to adjust internal temperature. This kit also keeps dusk from your inverter and increases product reliability in harsh environment.

6.2 Clearance and Maintenance

Step 1: Please loosen the screw in counterclockwise direction on the top of the inverter.
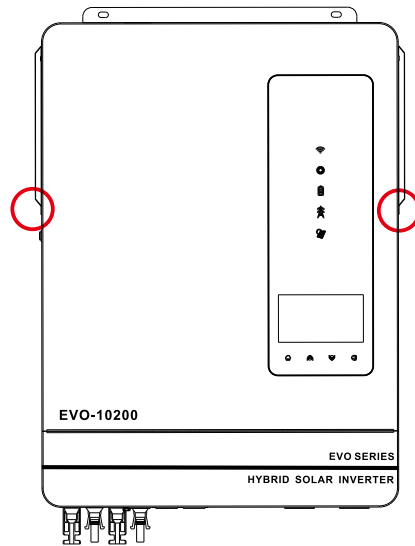
Step 2: Then, dustproof case can be removed and take out air filter foam as shown in below chart.
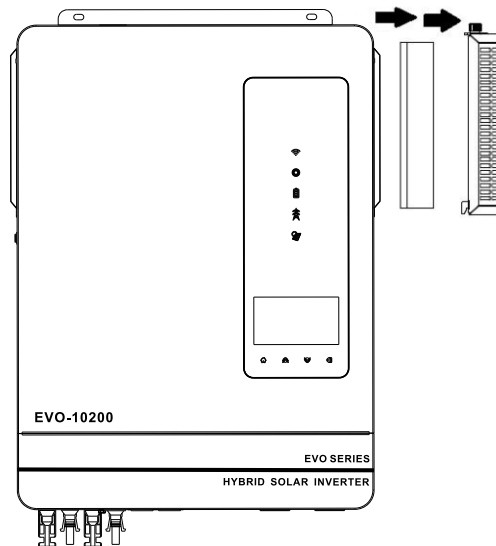
Step 3: Clean air filter foam and dustproof case. After clearance, re-assemble the dust-kit back to the inverter.

NOTICE: The anti-dust kit should be cleaned from dust every one month.

7 SPECIFICATIONS

Table 1 Line Mode Specifications
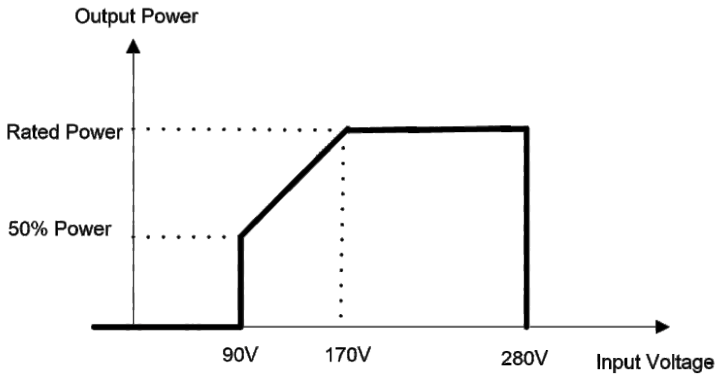
INVERTER MODEL	10.2KW
Input Voltage Waveform	Sinusoidal (utility or generator)
Nominal Input Voltage	230Vac
Low Loss Voltage	170Vac±7V (UPS); 90Vac±7V (Appliances)
Low Loss Return Voltage	180Vac±7V (UPS); 100Vac±7V (Appliances)
High Loss Voltage	280Vac±7V
High Loss Return Voltage	270Vac±7V
Max AC Input Voltage	300Vac
Nominal Input Frequency	50Hz / 60Hz (Auto detection)
Low Loss Frequency	40±1Hz
Low Loss Return Frequency	42±1Hz
High Loss Frequency	65±1Hz
High Loss Return Frequency	63±1Hz
Output Short Circuit Protection	Circuit Breaker
Efficiency (Line Mode)	>95% (Rated R load, battery full charged)
Transfer Time	10ms typical (UPS); 20ms typical (Appliances)
Output power derating: When AC input voltage drops to 170V, the output power will be derated.	

Table 2 Inverter Mode Specifications

INVERTER MODEL	10.2KW
Rated Output Power	10.2KW
Output Voltage Waveform	Pure Sine Wave
Output Voltage Regulation	230Vac±5%
Output Frequency	50Hz
Peak Efficiency	93%
Overload Protection	3s@≥150% load; 5s@101%~150% load
Surge Capacity	2* rated power for 5 seconds
Nominal DC Input Voltage	48Vdc
Cold Start Voltage	46.0Vdc
Low DC Warning Voltage @ load < 50% @ load ≥ 50%	44.0Vdc 42.0Vdc
Low DC Warning Return Voltage @ load < 50% @ load ≥ 50%	45.0Vdc 44.0Vdc
Low DC Cut-off Voltage @ load < 50% @ load ≥ 50%	41.0Vdc 40.0Vdc
High DC Recovery Voltage	62Vdc
High DC Cut-off Voltage	63Vdc
No Load Power Consumption	75W

Table 3 Two Load Output Power

INVERTER MODEL	10.2KW
Full Load	10200W
Maximum Main Load	10200W
Maximum Second Load(battery model)	3400W
Main Load Cut Off Voltage	44VDC
Main Load Return Voltage	52VDC

Table 4 Charge Mode Specifications

Utility Charging Mode	
INVERTER MODEL	**10.2KW**
Charging Algorithm	3-Step
AC Charging Current (Max)	140Amp
Bulk Charging Voltage — Flooded Battery	58.4
Bulk Charging Voltage — AGM / Gel Battery	56.4
Floating Charging Voltage	54Vdc
Charging Curve	

MPPT Solar Charging Mode	
INVERTER MODEL	**10.2KW**
Max. PV Array Power	PV1 Channel:5400W
	PV2 Channel:5400W
IMax.PV	PV1 Channel:18A
	PV2 Channel:18A
Nominal PV Voltage	360Vdc
PV Array MPPT Voltage Range	90Vdc~450Vdc
Max. PV Array Open Circuit Voltage	500Vdc
Max Charging Current (AC charger plus solar charger)	160Amp

Table 5 Grid-Tie Operation

INVERTER MODEL	**10.2KW**
Nominal Output Voltage	220/230/240 VAC
Feed-in Grid Voltage Range	195~253VAC
Feed-in Grid Frequency Range	49~51±1Hz/59~61±1Hz
Nominal Output Current	44.3A
Power Factor Range	＞0.99
Maximum Conversion Efficiency (DC/AC)	98%

Table 6 General Specifications

INVERTER MODEL	**10.2KW**
Safety Certification	CE
Operating Temperature Range	-10°C to 50°C
Storage temperature	-15°C~ 60°C
Humidity	5% to 95% Relative Humidity (Non-condensing)
Dimension (D*W*H), mm	530*390*130mm
Net Weight, kg	14.5

8 TROUBLE SHOOTING

Problem	LCD/LED/Buzzer	Explanation / Possible cause	What to do
Unit shuts down automatically during startup process.	LCD/LEDs and buzzer will be active for 3 seconds and then complete off.	The battery voltage is too low (<1.91V/Cell)	1. Re-charge battery. 2. Replace battery.
No response after power on.	No indication.	1. The battery voltage is far too low. (<1.4V/Cell) 2. Internal fuse tripped.	1. Contact repair center for replacing the fuse. 2. Re-charge battery. 3. Replace battery.
Mains exist but the unit works in battery mode.	Input voltage is displayed as 0 on the LCD and green LED is flashing.	Input protector is tripped	Check if AC breaker is tripped and AC wiring is connected well.
	Green LED is flashing.	Insufficient quality of AC power. (Shore or Generator)	1. Check if AC wires are too thin and/or too long. 2. Check if generator (if applied) is working well or if input voltage range setting is correct. (UPS⇄Appliance)
	Green LED is flashing.	Set "Solar First" as the priority of output source.	Change output source priority to Utility first.
When the unit is turned on, internal relay is switched on and off repeatedly.	LCD display and LEDs are flashing	Battery is disconnected.	Check if battery wires are connected well.
Buzzer beeps continuously and red LED is on.	Fault code 07	Overload error. The inverter is overload 110% and time is up.	Reduce the connected load by switching off some equipment.
	Fault code 05	Output short circuited.	Check if wiring is connected well and remove abnormal load.
		Temperature of internal converter component is over 120°C.	Check whether the air flow of the unit is blocked or whether the ambient temperature is too high.
	Fault code 02	Internal temperature of inverter component is over 100°C.	
	Fault code 03	Battery is over-charged.	Return to repair center.
		The battery voltage is too high.	Check if spec and quantity of batteries are meet requirements.
	Fault code 01	Fan fault	Replace the fan.
	Fault code 06/58	Output abnormal (Inverter voltage below than 190Vac or is higher than 260Vac)	1. Reduce the connected load. 2. Return to repair center
	Fault code 08/09/53/57	Internal components failed.	Return to repair center.
	Fault code 51	Over current or surge.	Restart the unit, if the error happens again, please return to repair center.
	Fault code 52	Bus voltage is too low.	
	Fault code 55	Output voltage is unbalanced.	

9 Appendix: Approximate Back-up Time Table

Model	Load (W)	Backup Time @ 48Vdc 100Ah (min)	Backup Time @ 48Vdc 200Ah (min)
10.2KW	500	613	1288
	1000	268	613
	1500	158	402
	2000	111	271
	2500	90	215
	3200	76	182
	3500	65	141
	4000	50	112
	4500	44	100
	5000	40	90
	6200	36	80
	7200	32	70
	8200	28	60
	9200	24	50
	10200	20	40

Note: 1. Backup time depends on the quality of the battery, age of battery and type of battery. Specifications of batteries may vary depending on different manufacturers.

2. The final interpretation right of this product belongs to the company.

技术要求：单页尺寸142*210mm；
　　　　　材质：封面105g铜版纸,内页80g书写纸；
　　　　　料号打于后封面左下角；
　　　　　注：此技术要求不用印刷

327-100161-00G